

SKEWED ROLLER BRAKE ASSEMBLY

Abstract

A skewed roller brake assembly (20) has a main axis of rotation ($x-x$), has a first plate (21) adapted to be rotated about the main axis, has a second plate (22) adapted to be rotated relative to the first plate about the main axis, and has an intermediate plate (23) positioned between the first and second plates. The first and second plates are adapted to be axially loaded with respect to one another. The intermediate plate has a plurality of slots (25). Each slot is bounded by a first wall (26) that is arranged at a first angle (θ_1) with respect to a radius from the main axis. A cylindrical roller (25) is arranged in each slot for rolling engagement with the first and second plates about the axis of the roller such that the roller axis ($y-y$) is parallel to the first wall when the first and second plates are rotated relative to one another in one angular direction. The slot has a second wall (28) arranged at a second angle (θ_2) with respect to a radius from the main axis such that the roller axis is parallel to the second wall when the first and second plates are rotated relative to one another in the opposite angular direction. The resistance to relative rotation between the first and second plates for the same value of axial loading may differ as a function of the direction of relative angular rotation between the first and second plates.